

2.1 Principles of Ecology, Organisms + Their Relationships

Review vocab: Species: a group of organisms that can interbreed and produce fertile offspring

Chapter Main idea: Biotic + Abiotic factors interact in complex ways in communities and ecosystems

I. Ecology

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A. Ecology — the scientific discipline in which the relationships among living organisms and the interaction the organisms have with their environment are studied

1. In a nutshell, ecology is the study of
★ organisms and how they interact with their environment + other organisms

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2. Models allow ecologists to control the number of variables present and to slowly introduce new variables in order to fully understand the effect of each variable

II Biosphere - the portion of Earth that supports life

A. "Bio" = life, sphere = round like a ball
→ "ball of life", but there is more to it

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B. Biosphere includes landmasses, bodies of freshwater and salt H_2O , and all locations below Earth's surface that supports life

→ Figure 3

C. Biotic Factors

1. The living factors in an organism's environment are biotic factors

→ Figure 4

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D. Abiotic Factors

1. The non-living factors in an organism's environment

a. abiotic factors vary greatly for organisms

b. examples: temperature, air or H_2O currents, soil type, etc.

2. Organisms are adapted to surviving in the abiotic factors that are present in their natural environments

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III Levels of organization (Figure 5)

A. Levels of Organization include

★ Organism → Population → Biological Community
→ Ecosystem → Biome → Biosphere

1. Population - individual organisms of a single species that share the same geographic location at the same time

2. Biological Community - a group of interacting populations that occupy the same area

B. Ecosystems, biomes, and the Biosphere

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1. Ecosystem- a biological community and all of the abiotic factors that affect it

2. Biomes- a large group of ecosystems that share the same climate and have similar types of communities

C. Ecosystem Interactions

1. The interactions between organisms are important in an ecosystem

2. Habitat- an area where an organism lives

3. Niche- the role or position that an organism has in its environment

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